IN THE CLAIMS

Claims 1-19 (Cancelled).

Claim 20 has been amended as follows:

20.   (Currently amended)   A method for extracting an EMG signal out of a raw signal, said raw signal being obtained by a plurality of electrodes adapted to interact with a patient to capture signals from the diaphragm of the patient, each electrode having an associated signal channel in which a raw signal is received from the associated electrode, said method comprising the steps of:

for each of said channels, automatically electronically determining a signal-to-noise ratio for the raw signal in that channel <u>by automatically estimating a level of ECG activity in the raw signal, and automatically electronically estimating a level of EMG activity in the raw signal, and automatically electronically determining said signal-to-noise ratio based on the estimated level of ECG activity and the estimated level of EMG activity</u>;

for each of said channels, automatically electronically determining a weighting factor for that channel dependent on the signal-to-noise ratio of that channel; and

weighting the respective raw signals from the channels by the respective weighting factors determined for the channels, to obtain weighted raw signals, and summing the weighted raw ~~signal~~ <u>signals</u> to obtain a summed signal representing a total EMG signal in said raw signals.

Claim 21 has been amended as follows:

21.   (Currently amended)   A   method   as   claimed   in   claim   20
comprising, for each channel:

~~automatically electronically estimating a level of ECG activity in the raw signal;~~

~~automatically electronically estimating a level of EMG activity in the raw~~
~~signal;~~

~~automatically electronically determining said signal-to-noise ratio based on the~~
~~estimated level of ECG activity and the estimated level of EMG activity;~~
~~and~~

normalizing said summed signal representing the total EMG signal.

Claim 22 has been amended as follows:

22.   (Currently amended)   A   method   as   claimed   in   claim   ~~21~~ 20
comprising   automatically   electronically   calculating   said   signal-to-noise   ratio
according to the equation $R^n/(R+S)$, wherein R is the estimated level of EMG activity,
S is the estimated level of ECG activity, and n is an integer greater than 1.

Claim 23 has been amended as follows:

23.   (Currently amended)   A   method   as   claimed   in   claim   ~~21~~ 20
comprising estimating the level of ECG activity by filtering an estimated ECG signal
out of the raw signal and comparing the estimated ECG signal with a threshold
value.

Claim 24 has been amended as follows:

24.   (Currently amended)   A method as claimed in claim 24 20 comprising estimating the level of ECG activity comprises automatically electronically calculating a probability function indicating a probability that an ECG signal is included in the raw signal of the channel.

25.   (Previously presented)   A method as claimed in claim 24 comprising estimating the level of ECG activity only if said probability function indicates a predetermined level of probability that an ECG signal is included in the raw signal of the channel.

Claim 26 has been amended as follows:

26.   (Currently amended)   A device for extracting an EMG signal out of a raw signal, said raw signal being obtained by a plurality of electrodes adapted to interact with a patient to capture signals from the diaphragm of the patient, each electrode having an associated signal channel in which a raw signal is received from the associated electrode, said device comprising:

an analysis unit that, for each of said channels, automatically electronically determines a signal-to-noise ratio for the raw signal in that channel, by automatically estimating a level of ECG activity in the raw signal, and automatically electronically estimating a level of EMG activity in the raw signal, and automatically electronically determining said signal-to-noise ratio based on the estimated level of ECG activity and the estimated level of EMG activity and that automatically electronically determines a weighting factor for that channel dependent on the signal-to-noise ratio of that channel, and that weights the respective raw signals from the

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channels by the respective weighting factors determined for the channels, to obtain weighted raw signals, and <u>that</u> sums the weighted raw signals to obtain a summed signal representing a total EMG signal in said raw signals.

Claim 27 has been amended as follows:

27.   (Currently amended)   A device as claimed in claim 26 wherein said analysis unit, for each channel, automatically electronically estimates a level of ECG activity in the raw signal, automatically electronically estimates a level of EMG activity in the raw signal, automatically electronically determines said signal-to-noise ratio based on the estimated level of ECG activity and the estimated level of EMG activity, and normalizes said summed signal representing the total EMG signal.

Claim 28 has been amended as follows:

28.   (Currently amended)   A device as claimed in claim ~~27~~ <u>26</u> wherein said analysis unit automatically electronically calculates said signal-to-noise ratio according to the equation $R^n/(R+S)$, wherein R is the estimated level of EMG activity, S is the estimated level of ECG activity, and n is an integer greater than 1.

Claim 29 has been amended as follows:

29.   (Currently amended)   A device as claimed in claim ~~27~~ <u>26</u> wherein said analysis unit estimates the level of ECG activity by filtering an estimated ECG signal out of the raw signal and comparing the estimated ECG signal with a threshold value.

Claim 30 has been amended as follows:

30.   (Currently amended)   A device as claimed in claim ~~27~~ <u>26</u> wherein said analysis unit estimates the level of ECG activity by automatically electronically

calculating a probability function indicating a probability that an ECG signal is included in the raw signal of the channel.

31. (Previously presented)   A device as claimed in claim 30 wherein said analysis unit estimates the level of ECG activity only if said probability function indicates a predetermined level of probability that an ECG signal is included in the raw signal of the channel.

Claim 32 has been amended as follows:

32. (Currently amended)   A computer-readable medium encoded with a computer program loadable into a computer for extracting an EMG signal out of a raw signal, said raw signal being obtained by a plurality of electrodes adapted to interact with a patient to capture signals from the diaphragm of the patient, each electrode having an associated signal channel in which a raw signal is received from the associated electrode, said computer program causing said computer to:

> for each of said channels, determine a signal-to-noise ratio for the raw signal in that channel by automatically estimating a level of ECG activity in the raw signal, and automatically electronically estimating a level of EMG activity in the raw signal, and automatically electronically determining said signal-to-noise ratio based on the estimated level of ECG activity and the estimated level of EMG activity;

> for each of said channels, determine a weighting factor for that channel dependent on the signal-to-noise ratio of that channel; and

weight the respective raw signals from the channels by the respective weighting factors determined for the channels, to obtain weighted raw signals, and sum the weighted raw signals to obtain a summed signal representing a total EMG signal in said raw signals.

Claim 33 has been amended as follows:

33. (Currently amended) A computer readable medium as claimed in claim 32 wherein said computer program causes said computer to, ~~for each channel~~:

~~estimate a level of ECG activity in the raw signal;~~

~~estimate a level of EMG activity in the raw signal;~~

~~determine said signal-to-noise ratio based on the estimated level of ECG activity and the estimated level of EMG activity; and~~

~~normal~~ <u>normalize</u> said summed signal representing the total EMG signal.

Claim 34 has been amended as follows:

34. (Currently amended) A computer readable medium as claimed in claim ~~33~~ <u>32</u> wherein said computer program causes said computer to calculate said signal-to-noise ratio according to the equation $R^n/(R+S)$, wherein R is the estimated level of EMG activity, S is the estimated level of ECG activity, and n is an integer greater than 1.

Claim 35 has been amended as follows:

35. (Currently amended) A computer readable medium as claimed in claim ~~33~~ <u>32</u> wherein said computer program causes said computer to estimate the level of ECG activity by filtering an estimated ECG signal out of the raw signal and comparing the estimated ECG signal with a threshold value.

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Claim 36 has been amended as follows:

36. (Currently amended) A computer readable medium as claimed in claim 33 32 wherein said computer program causes said computer to estimate the level of ECG activity by calculating a probability function indicating a probability that an ECG signal is included in the raw signal of the channel.

37. (Previously presented) A computer readable medium as claimed in claim 36 wherein said computer program causes said computer to estimate the level of ECG activity only if said probability function indicates a predetermined level of probability that an ECG signal is included in the raw signal of the channel.